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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,347	03/26/2004	Ray R. Eshraghi	4172-120	1569

23448 7590 05/17/2005

INTELLECTUAL PROPERTY / TECHNOLOGY LAW  
PO BOX 14329  
RESEARCH TRIANGLE PARK, NC 27709

EXAMINER

VARGOT, MATHIEU D

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/811,347

Applicant(s)

ESHRAHGH ET AL.

Examiner

Mathieu D. Vargot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-68, 71 and 73-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-68, 71 and 73-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/23/04 & 3/7/05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

1. Upon reconsideration, the species requirement has been dropped and an action hereby follows on all the method claims.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 21, 23, 42 and 76-78 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffman et al (see col. 10, line 58 through col. 11, line 20; col. 7, lines 10-13 for the easily removable sacrificial layer/substrate material on the fiber surface). The applied reference discloses the instant method for forming a hollow polymeric fiber by coating a layer of removable substrate material (see col. 7, lines 10-13) over a fiber (which can be solid or hollow—ie, instant claim 1), coating a polymeric membrane forming material over either the removable substrate material (or simply the removable fiber itself—ie, instant claim 23), treating (ie, solidifying) the polymeric membrane forming material and removing the removable substrate material and solid core fiber from the solidified polymeric membrane to form the hollow polymeric fiber. See the above noted passages. The “removable interface” of instant claims 21 and 42 reads on the removable sacrificial layer disclosed at col. 7, lines 10-13 of Hoffman et al.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4, 6-20, 22, 24-41, 43-68, 71, 73-75, 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al.

Hoffman et al discloses the basic claimed method as set forth in paragraph 2, supra, the applied reference essentially lacking the aspects of exactly how the substrate materials are removable (claims 2-4), the exact fiber diameter (claim 6), the specific materials for the membrane (claims 7-9), a solution extrusion of the ionomer material (claims 10-13), the employment of reinforcing fibers in the hollow fiber material (claims 14-20) and that the interface is an open cavity (claim 22). It is submitted that these aspects would have all been within the skill level of the art and obvious modifications to the process of the applied reference. For instance, the applied reference clearly envisions fibers which are removable through melting or dissolving and to make a removable/sacrificial layer removable in the same manner would have been clearly obvious. Hoffman et al discloses fiber diameters as small as the nanometer range and hence the instant range of 10 microns to 10 mm, which is much larger, would clearly have been obvious thereover. Hoffman et al teaches that polymers would be used as the membrane forming material but fails to explicitly disclose any specific polymers used. However, the instant polymeric materials are all well known and would have been obvious material selections dependent on the final use for the fiber. The same is true for the instant ionomer material and the employment of reinforcing fibers in the membrane forming material. Concerning the reinforcement material, see also column 1, line 61, where Hoffman et al discloses that the produced tubes would be made of materials such as "any type of... composite" and certainly this would have rendered obvious the use of

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reinforcing fibers in the membrane forming material. Extrusion, while not specifically taught in Hoffman et al, is a conventional way to coat substrates and one of ordinary skill in the art would have found this an obvious modification to the process of the applied reference to facilitate the coating. Further, it is submitted that an open cavity interface would have been obvious over the disclosure in Hoffman et al of using hollow fibers.

Independent claims 44 (membrane material is swellable) , 56 (ion-exchange material), 66 (pore-forming material), 71 (membrane material has reinforcing fibers) and 73 and 75 (removable substrate material and polymeric membrane material are coextruded) are submitted to have been obvious over the process disclosed in Hoffman et al for the additional reason that the exact material used to make the membrane would have been an obvious feature dependent on the exact use desired for the final fiber. The coextrusion of the removable substrate material along with the polymeric membrane forming material would have been an obvious expedient to form a composite structure which would be processed to make the fibers. The claims dependent off these independent claims are rejected for reasons of record concerning claims 2-4, 6, 7-9, 10-13, 14-20 and 22 as appropriate.

4.Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mathieu D. Vargot whose telephone number is 571 272-1211. The examiner can normally be reached on Mo9n-Fri from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni, can be reached on 571 272-1196. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Vargot  
May 13, 2003

*M. Vargot*  
Mathieu D. Vargot  
Primary Examiner  
Art Unit 1732

*5/13/03*